ENDAT-7703 USERS MANUAL

UNICORN COMPUTER CORP.

ENDAT-7703

User's Manual

For ENDAT-7703 PCB ver. A2 or later

Sep.09.2015

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Installation Notice

The manufacturer recommends using a grounded plug to ensure proper motherboard operation. Care should be used in proper conjunction with a grounded power receptacle to avoid possible electrical shock. All integrated circuits on this motherboard are sensitive to static electricity. To avoid damaging components from electrostatic discharge, please do not remove the board from the anti-static packing before discharging any static electricity to your body, by wearing a wrist-grounding strap. The manufacturer is not responsible for any damage to the motherboard due to improper operation.

Specification:

Model	ENDAT-7703
System Chipset	Mobile Intel QM77 Express Chipset
CPU Supporting	Intel Ivy Bridge Core i3/i5/i7/Celeron mobile processor Intel Sandy Bridge Core i3/i5/i7/Celeron mobile processor
Memory	2 x 204-Pin DDR3 SODIMM sockets support DDR3-1066/1333/1600 up to 16 GB
Ethernet	2 x Intel Gb LAN support by 82583V + 82579LM (PHY)
VGA	Ivy Bridge CPU Built-In Intel HD Graphics 4000/2500 Sandy Bridge CPU Built-In Intel HD Graphics 3000/2000 Maximum resolution up to 2048x1536
LVDS interface	Support 18/24/36/48bit LVDS with backlight control by standard (maximum resolution 1920 x 1200)
Dual view	CRT + DVI, CRT + LVDS, DVI+LVDS
Serial	4 ports RS-232 with power selector (+12V / Ring-in / +5V)
RS 422 / 485	feature by COM2
TPM	TPM Security Chip SLB9635 (optional)
iAMT	8.0
LPT	1 x LPT with 2.0mm Box Header
SATA	2 ports SATA2 + 2 ports SATA3
USB	USB 2.0 x 8 (4 external + 4 internal) & USB 3.0 (4 external)
Expansion	1 x 16 lanes PCIE slot +1 x single lane mini-PCIE socket
Watch Dog Timer	On-chip supports 1 to 255 seconds / minutes
AUDIO	HD Audio with 1.2W amplifier
Back Panel I/O	1 x 4 ports USB 2.0 connector
	2 x USB 3.0 (2 ports) + 2 x RJ-45 connector
	1 x double deck D-SUB connector support COM1 + COM2
	1 x double deck D-SUB connector support VGA + DVI
	3 x Port Phone Jack for SPK-OUT/MIC/LINE-IN
Internal I/O	PS2 Keyboard / Mouse with 2.54mm Pin Header
	Speaker out, Line-in, CD-in, MIC-in with 2.54mm Pin Header
	VGA / COM3 ~ COM4 / LPT1 with 2.0mm Box Header
	4 x USB with 2.54mm Pin Header
	8-bits digital I/O for CMOS/TTL level (4 bit input / 4 bit output) with 2.0mm Pin Header
	1 x SPDIF with 2.0mm Pin Header
	SIM Card Socket (optional)
Power Supply	ATX
Form Factor	MINI-ITX (170mm x 170mm) with 8 Layers PCB

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Chapter 1. Introduction

In order to cope with the challenges of the system performance issues and demand of much more visually embedded system in diverse application, ENDAT-7703 system board provide the ultimate solution with Intel® 32nm / 22nm Core i7/i5/i3/Celeron Processor with Socket 988 (FCPGA988) / Socket 988B (FCPGA988B).
This package offers a high performance Intel® CPU with optimal power efficiency on the embedded market.

ENDAT-7703 supports Dual channel DDR3 1066/1333/1600 MHz memory. The maximal capacity is up to 16GB.

ENDAT-7703
Intel Ivy Bridge CPU Intel HD Graphics 4000/2500 GPU core with 650MHz of base frequency, Microsoft DirectX 11 support.

Intel Sandy Bridge CPU Intel HD Graphics 3000/2000 GPU core supports Microsoft DirectX 10.1 and OpenGL 3.0.

ENDAT-7703 supports not only Single Channel LVDS but also various kinds of display include VGA and LVDS; Dual display is also feasible.

ENDAT-7703 provides one PCIe x16 slot and one Mini-PCIe x1 slot to support one standard PCIe x16 and Mini-PCIe x1 interface.

The ideal solutions of ENDAT-7703

- POS system
- KIOSK
- Vehicle system
- Interactive system
- Industrial controller
- Gaming system
- Medical system
- Embedded system equipment

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1-1. Features

Basic Feature:

- Intel® 32nm/ 22nm Core i7/i5/i3/Celeron Processor with Socket 988 (FCPGA988) / Socket 988B (FCPAG988B).
- Dual channel DDR3 SO-DIMM socket supports 1066/1333/1600 MHz up to 16GB.
- Dual PCI Express interface Gigabit Ethernet chip on-board.
- Intel Ivy Bridge CPU Built-In Intel HD Graphics 4000/2500
  Intel Sandy Bridge CPU Built-In Intel HD Graphics 3000/2000
- PCI-E & Mini-PCIe slot support.
- Built-in HD Audio with 1.2W amplifier.
- Four fully functional serial ports.
- Tow SATA 3.0 ports & Tow SATA 2.0 ports With SATA RAID 0/1/5/10 or AHCI.

Software Support

- Drivers for major embedded operating systems: Linux, Windows7, Windows XP, Windows XP embedded.

Ordering information:

Standard edition:

ENDAT-7703

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1-2. Unpacking

The motherboard comes securely packaged in a sturdy cardboard shipping carton. In addition to the User's Manual, the motherboard package includes the following items:

- ENDAT-7703 System Board
- One SATA HDD Cable
- LCD cable **(Optional)**
- CD with Driver utilities for on-board chipsets, VGA and LAN adapter

If any of these items is missing or damage, please contact the dealer whom you purchase the motherboard from. Save the shipping material and carton in the event that you want to ship or store the board in the future.

Note: Leave the motherboard in its original package until you are ready to install it!

1-3. Electrostatic Discharge Precautions

Make sure you properly ground yourself before handling the motherboard, or other system components. Electrostatic discharge can easily damage the components. Note: You must take special precaution when handling the motherboard in dry or air-conditioned environments.

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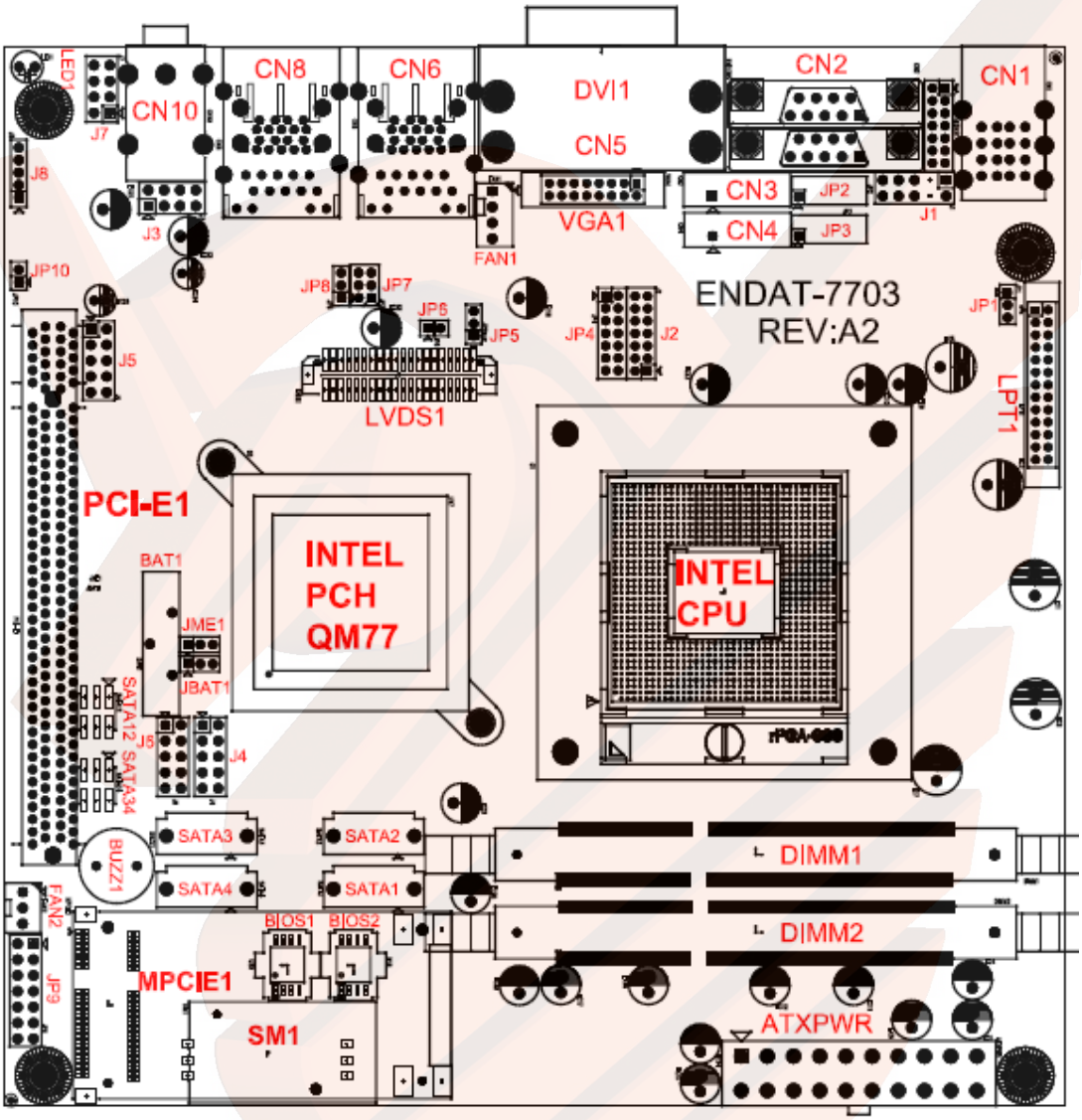
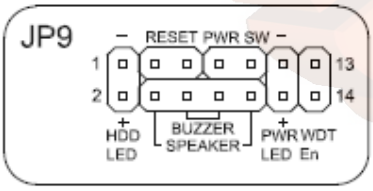
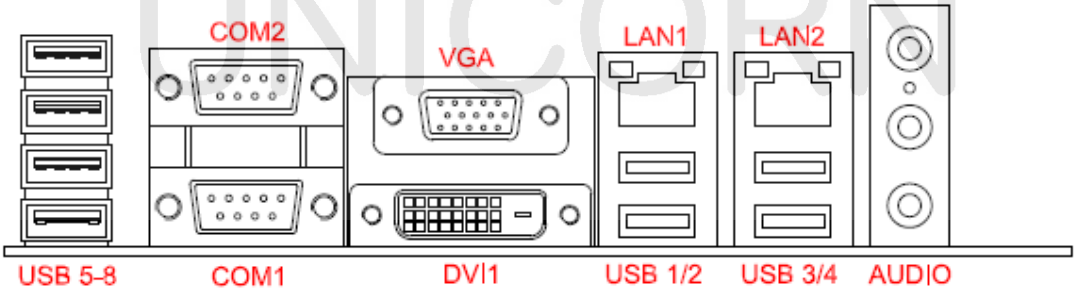
1-4. MOTHERBOARD LAYOUT.





ENDAT-7703 Rev.A2 Rear View



Chapter 2. Setting up the Motherboard

2-1. Connectors / Headers and Jumpers

Connectors Overview:

Function	Connectors
Cooling Fan Connector	FAN1, FAN2
ATX Power Supply Connector	ATXPWR
USB 2.0 Port	CN1
USB 3.0 Port	CN6, CN8
LAN Port	CN6, CN8
SATA Connector	SATA1, SATA2, SATA3, SATA4
DDR3 RAM Socket	DIMM1, DIMM2
CRT Output Connector	CN5
COM1,COM2 Connector	CN2
HD Audio Speaker Output	CN10
LCD Panel Connector	LVDS1
PCI-E x16 Slot	PCI-E1
Mini PCI-E x1 Slot	MPCIE1
Battery Socket	BAT1

Box Headers, Pin Headers Overview:

Function	Connectors
PS/2 Mouse/KB Pin Header	J1
External PS/2 Device Header	JKBMS1
SPDIF Pin Header	J8
Line-Out, CD-In Pin Header	J3
Line-In、MIC-In Pin Header	J7
USB Port Header	J4, J6
Reserved Power for LVDS1 (+3.3V)	JP6
VGA Box Header	VGA1
Printer Port Box Header	LPT1
COM Port Box Header	CN3, CN4
DIGITAL I/O Pin Header	J2

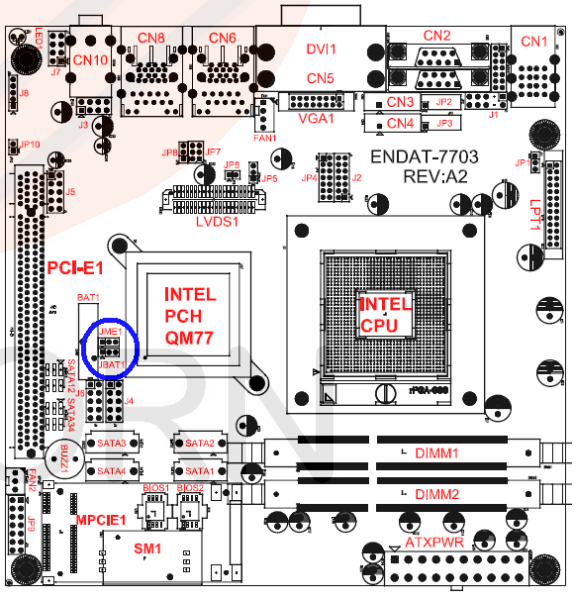
Jumpers Overview:

Function		Connectors
LVDS1	LCD Voltage Select	JP7
	LCD Backlight Voltage Select	JP8
	LCD Backlight Control Voltage Select	JP5
	LCD Backlight for +3.3 Voltage use	JP6
Clear CMOS		JBAT1
ME Clear		JME1
PS/2 Mouse/KB Voltage Selector		JP1
COM1/2/3/4 Voltage Selector		JP2, JP3
RS232 / 485 Selector for COM2		BIOS Setting
SATA1, 2, 3, 4, Pin7 Power/GND Select		SATA12, SATA34
Header for Case Panel		JP9
HDD LED		JP9: Pin 1(-), Pin 2(+)
External Speaker		JP9: Pin 4(-), Pin 10(+)
Buzzer On/Off		JP9: Pin 6, Pin 8
Hardware Reset Switch		JP9: Pin 3, Pin 5
ATX Power Supply On/Off Switch		JP9: Pin 7, Pin 9
Power LED		JP9: Pin 11(-), Pin 12(+)
WDT Function Enable/Disable		JP9: Pin 13, Pin 14

Part 1: Onboard Jumpers

JME1: ME Data Clear (1x3 with 2.0mm)

Pin 2-3 *	Normal
Pin 1-2	Close for clear ME

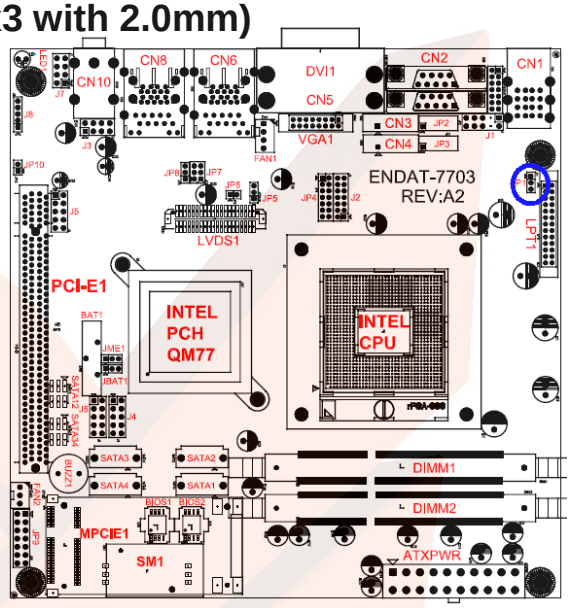


JBAT1: CMOS Data Clear (1x3 with 2.0mm)

Pin 2-3 *	Normal
Pin 1-2	Close for clear CMOS

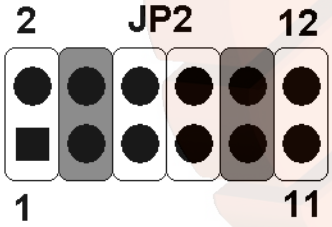
JP1: PS/2 Mouse/KB Voltage Selector (1x3 with 2.0mm)

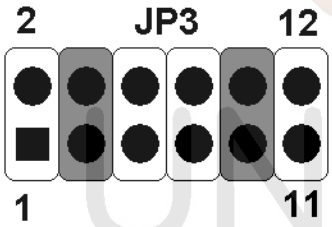
Voltage	+5VSUS*	+5V
JP1	1-2	2-3

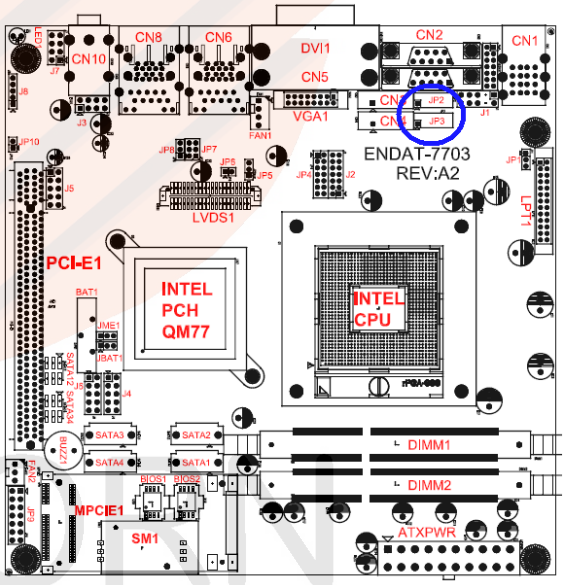


JP2, JP3: COM Port Voltage Selector (2x6 with 2.0mm)

Voltage	+12V(DC)	R.I. *	+5V(DC)
JP2 (COM1)	1-2	3-4	5-6
JP2 (COM2)	7-8	9-10	11-12
JP3 (COM3)	1-2	3-4	5-6
JP3 (COM4)	7-8	9-10	11-12





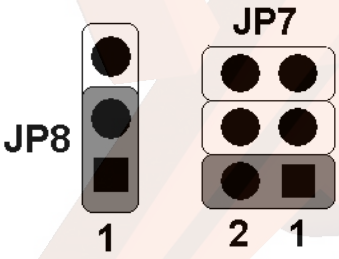


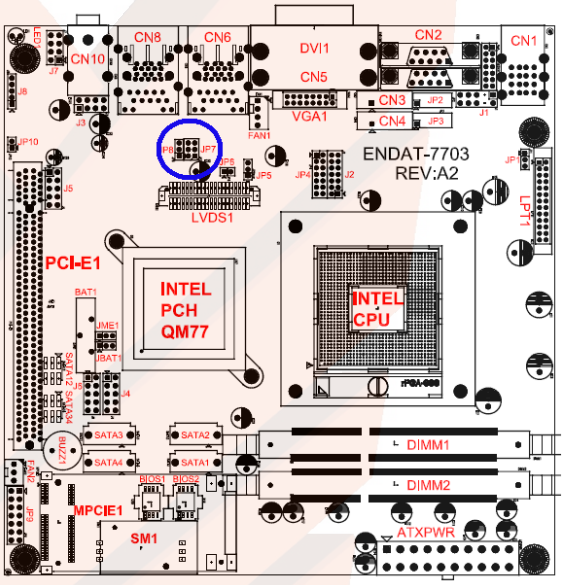
JP7: LCD Voltage Select (2x3 with 2.0mm)

Voltage	+3.3V *	+5V	+12V
JP7 (LVDS1)	1-2	3-4	5-6

JP8: LCD Backlight Voltage Select (1x3 with 2.0mm)

Voltage	+5V *	+12V
JP8 (LVDS1)	1-2	2-3



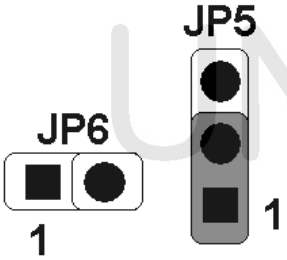


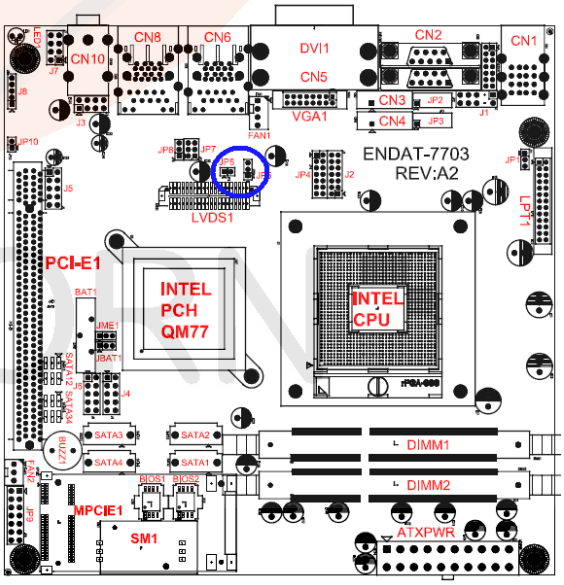
JP5: LCD Backlight Control Voltage Select (1x3 with 2.0mm)

Voltage	+3.3V *	+5V
JP5	1-2	2-3

JP6 LCD Backlight Voltage (for +3.3V)

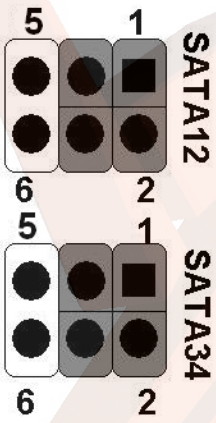
Voltage	+3.3V
JP6	Output

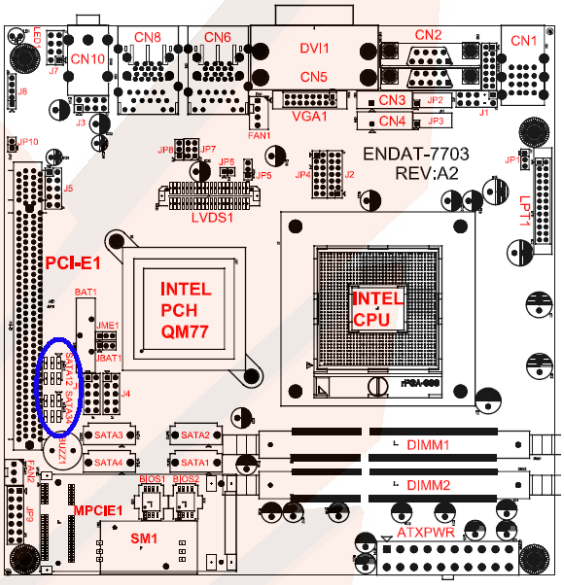




SATA12: SATA port1, 2 pin7 Power/GND select (2x3 with 2.0mm)

	GND*	+5V
SATA1	1-3	3-5
SATA2	2-4	4-6

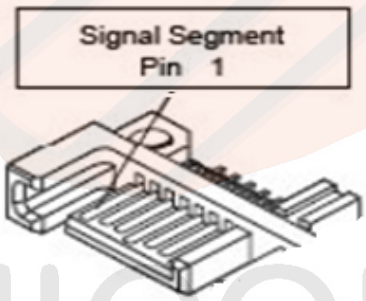




SATA34: SATA port3, 4 pin7 Power/GND select (2x3 with 2.0mm)

	GND*	+5V
SATA3	1-3	3-5
SATA4	2-4	4-6

SATA Connector:



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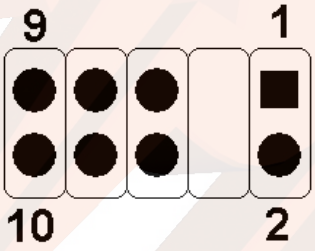
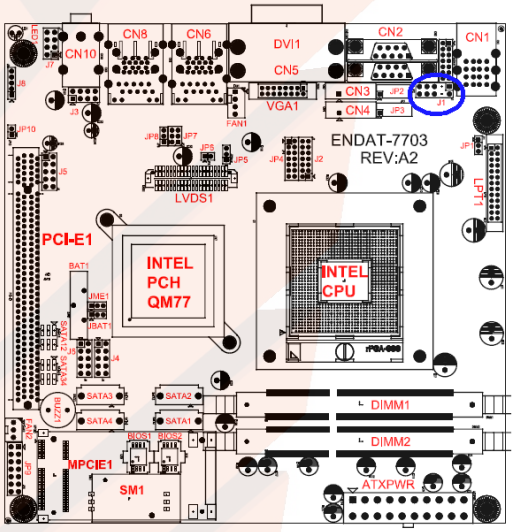
Part 2: Onboard Connectors and Headers

J1: PS/2 Keyboard / Mouse Header (2x5 with 2.54mm)

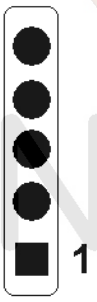
Pin No.	Signal	Pin No.	Signal
1	KB Data	**2**	MS Data
3	KEY	**4**	KEY
5	GND	**6**	GND
7	+5V(DC)	**8**	+5V(DC)
9	KB_CLK	**10**	MS_CLK

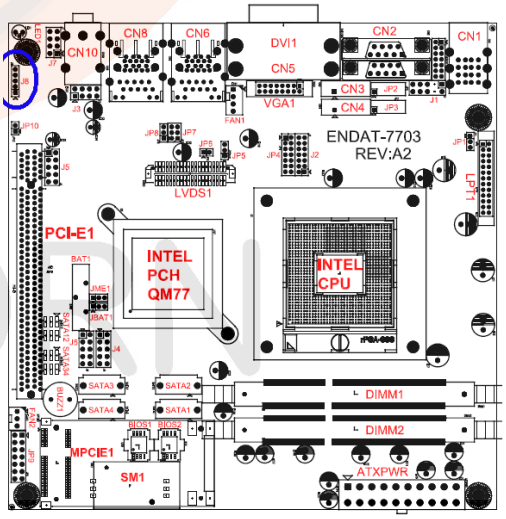




J8: SPDIF Header (1 x 5 with 2.0mm)

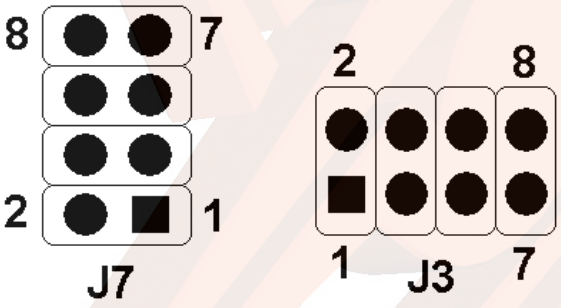
Pin No.	Signal	Pin No.	Signal
1	+5V	**4**	GND
2	N.C	**5**	SPDIF-IN
3	SPDIF-OUT		

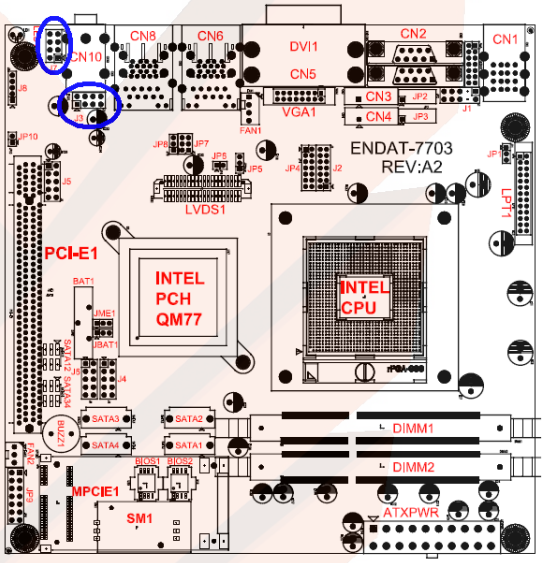




J3: LINE-OUT & CD-IN Header (2 x 4 with 2.54mm)

Pin No.	Signal	Pin No.	Signal
1	LINE_OUT_L	2	CD_IN_R
3	JACK_DETECT	4	GND_AUD
5	GND_AUD	6	GND_AUD
7	LINE_OUT_R	8	CD_IN_L





J7: LINE-IN & MIC-IN Header (2 x 4 with 2.54mm)

Pin No.	Signal	Pin No.	Signal
1	LINE_IN_R	2	MIC_ R
3	JACK_DETECT	4	JACK_DETECT
5	GND_AUD	6	GND_AUD
7	LINE_IN_L	8	MIC_ L

Notice: Please connect the jack detect pin to "GND_AUD" if the actual connector cannot support the jack detect function!

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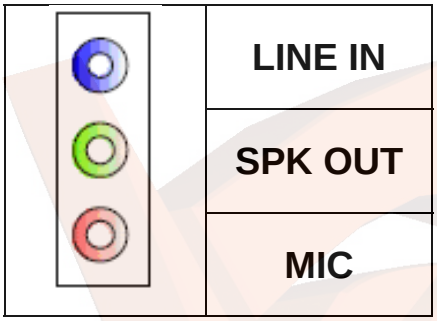
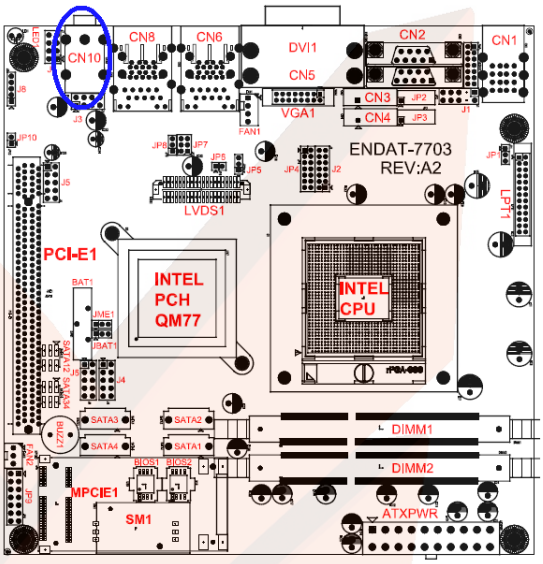
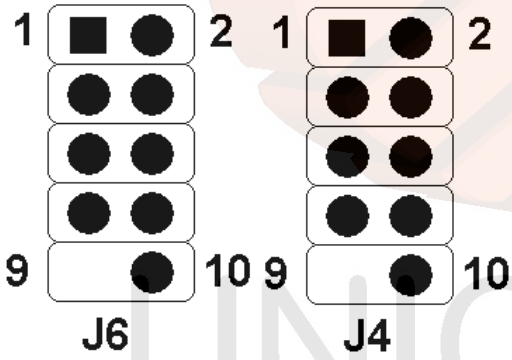
CN10: 3 Ports Audio Jack

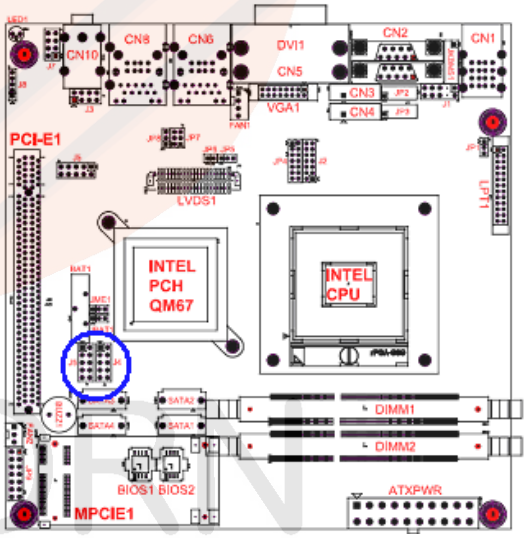




J4, J6: Pin Header for USB ports (2x5 with 2.54mm)

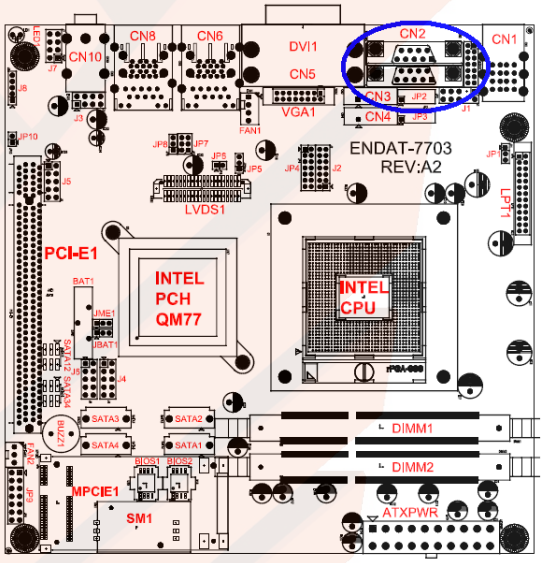
Pin No.	Signal	Pin No.	Signal
1	USB_VCC	2	USB_VCC
3	USBD4-/6-	4	USBD5-/7-
5	USBD4+/6+	6	USBD5+/7+
7	USB_GND	8	USB_GND
9	KEY	10	USB_GND





CN2: D-SUB Type Connector for COM1, 2 port (RS-232)

Pin No.	Signal	Pin No.	Signal
1	DCD	**6**	DSR
2	RXD	**7**	RTS
3	TXD	**8**	CTS
4	DTR	**9**	RI
5	GND		



D-SUB Type Connector for COM2 port (RS-422→ 4 Wire)

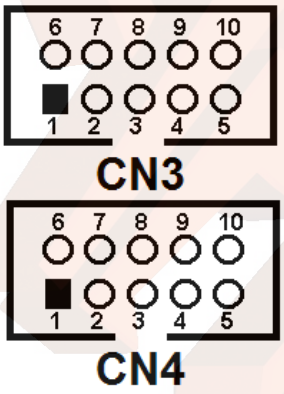
Pin No.	Signal	Pin No.	Signal
1	–TXD	**6**	NA
2	+RXD	**7**	NA
3	+TXD	**8**	NA
4	–RXD	**9**	NA
5	NA		

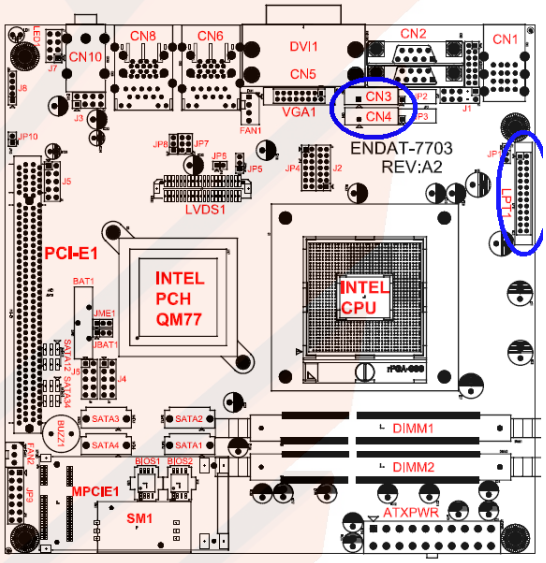
D-SUB Type Connector for COM2 port (RS-485→ 2 Wire)

Pin No.	Signal	Pin No.	Signal
1	Data –	**6**	NA
2	Data +	**7**	NA
3	NA	**8**	NA
4	NA	**9**	NA
5	NA		

CN3 (COM3), CN4 (COM4): COM3~COM4 Box Headers (2x5 with 2.0mm)

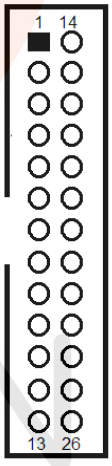
Pin No.	Signal	Pin No.	Signal
1	DCD	**6**	DSR
2	RXD	**7**	RTS
3	TXD	**8**	CTS
4	DTR	**9**	RI
5	GND	**10**	N.C.





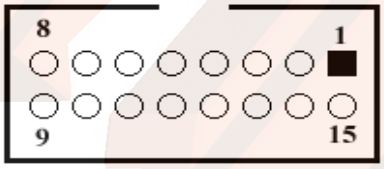
LPT1: Printer Port Box Header (2x13 with 2.0mm)

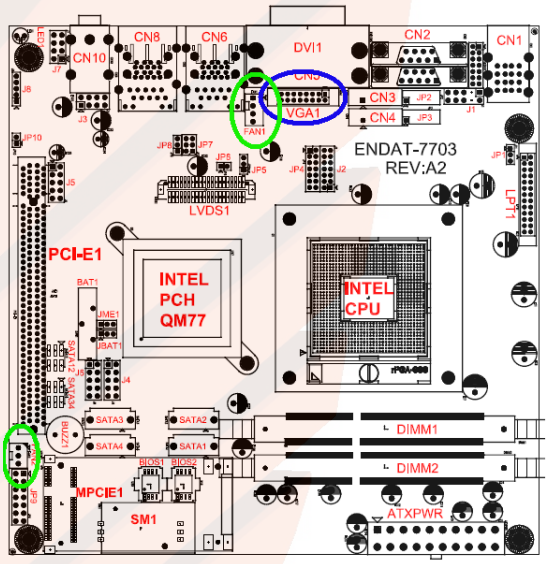
Pin No.	Signal	Pin No.	Signal
1	STB#	**10**	ACK#
2	PD0	**11**	BUSY
3	PD1	**12**	PE
4	PD2	**13**	SLCT
5	PD3	**14**	AFD#
6	PD4	**15**	ERR#
7	PD5	**16**	INIT#
8	PD6	**17**	SLIN#
9	PD7	**18-25**	GND



VGA1: CRT Box Header Connector (2x8 with 2.0mm)

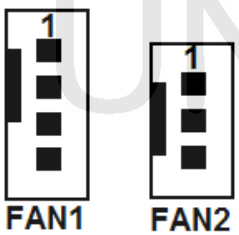
Pin No.	Signal	Pin No.	Signal
1	RED	**9**	N.C.
2	GREEN	**10**	GND
3	BLUE	**11**	N.C.
4	N.C.	**12**	DDC DAT
5	GND	**13**	H-Sync
6	GND	**14**	V-Sync
7	GND	**15**	DDC CLK
8	GND		





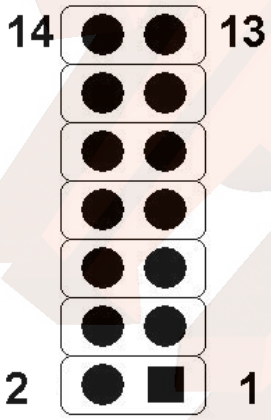
FAN1, FAN2: Cooling Fan Connector

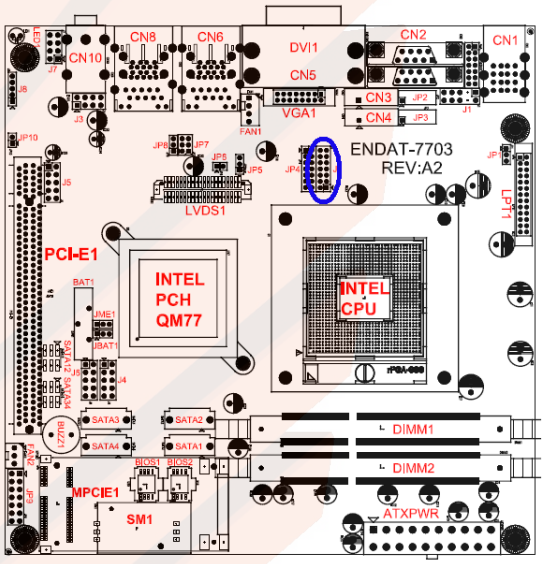
Pin No.	Signal
1	GND
2	+12V
3	Sensor Pin
4	PWM(Fan1 Only)



J2: DIGITAL I/O Pin Header (2 x 7 with 2.0mm)

Pin No.	Signal	Pin No.	Signal
1	+5V	**2**	+5V
3	DIO-O0	**4**	DIO-I0
5	DIO-O1	**6**	DIO-I1
7	GND	**8**	GND
9	DIO-O2	**10**	DIO-I2
11	DIO-O3	**12**	DIO-I3
13	+3.3V	**14**	+3.3V





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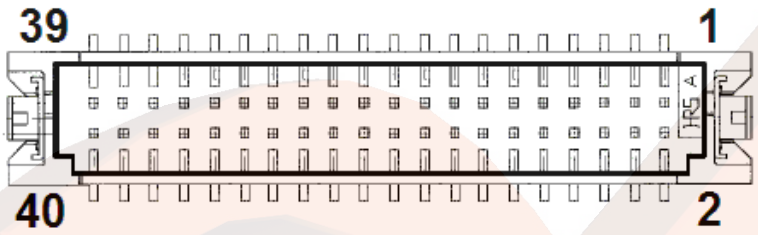
LVDS1: Single /Dual Channel LVDS (18/24/36/48 bit, 1.25mm)

MB: DF-13A-40DP-1.25V / Map: DF13-40DS-1.25C

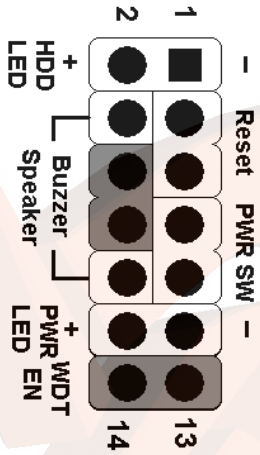


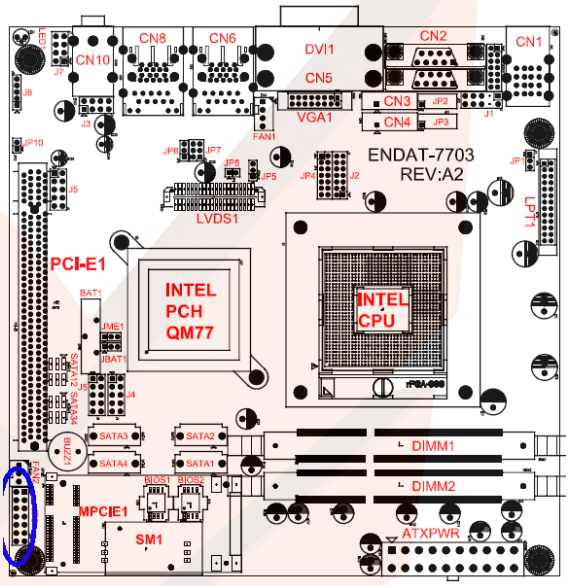
Pin No.	Signal	Pin No.	Signal
1	VBL	**2**	VBL
3	GND	**4**	GND
5	DISP.ON/OFF	**6**	GND
7	LCD POWER	**8**	LCD POWER
9	GND	**10**	GND
11	Odd 0+	**12**	Odd 0-
13	Odd 1+	**14**	Odd 1-
15	Odd 2+	**16**	Odd 2-
17	Odd 3+	**18**	Odd 3-
19	Odd CLK+	**20**	Odd CLK -
21	GND	**22**	KEY
23	Even 0+	**24**	Even 0-.
25	Even 1+	**26**	Even 1-
27	Even 2+	**28**	Even 2-
29	Even 3+	**30**	Even 3-
31	Even CLK+	**32**	Even CLK-
33	LCD POWER	**34**	LCD POWER
35	GND	**36**	GND
37	GND	**38**	GND
39	VBL	**40**	VBL

Please make sure the Pin 1 location before plug-in LCD connector.
Please leave pin 23rd ~ pin 32nd unconnected if the single channel LVDS function is needed.

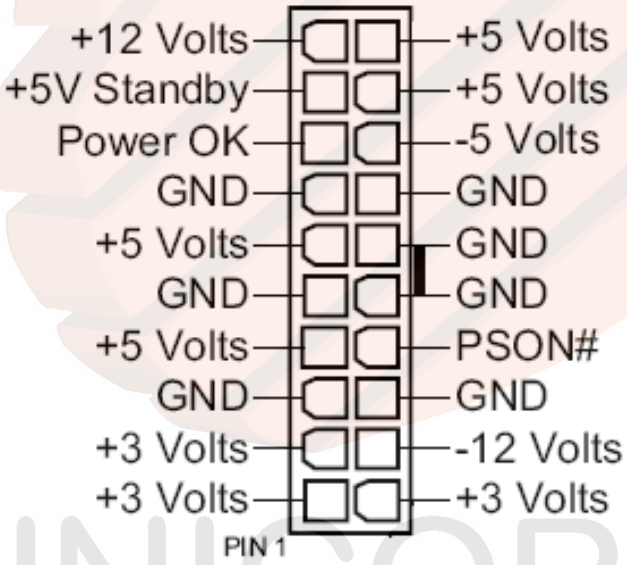
Please double check "jumper setting & LCD cable's orientation" before power-on, any incorrect installation may caused damaged of the LCD.

JP9: Header for Case Panel (2 x 7 with 2.54mm)





ATXPWR: ATX Power connector



2-2. Installing Memory

The DDR3 SO-DIMM sockets of ENDAT-7703 support up to 16GB. The speed of DDR3 memory can be DDR3 1066/1333/1600 MHz.

2-3. Shared VGA Memory

The ENDAT-7703 built-in Intel® HD graphic share memory; please refer to INTEL web site link:

http://www.intel.com/support/graphics/sb/CS-029090.htm?wapkw=%22intel++graphics+media+accelerator+3150+intel++gma+3150%22+hd+graphics+3000

2-4. Watch Dog Timer

Watch dog Timer (WDT) is a special design for system monitoring to secure the system work normally. WDT has an independent clock from the oscillator and could set time and clear/refresh WDT counter function. When time is up, WDT will send hardware RESET signal to reset system.

Timeout Value Range
-1 to 255

-Second or Minute

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Sample code (using TurboC/C++ 3.0):

```
#include <stdio.h>
#include <dos.h>
#include <dir.h>
void show_ver();
void main()
{
        unsigned int tt;
        clrscr();
        show_ver();
        tt=0;
        while((tt==0)||(tt>255))
        {
                printf("\n\nPlease key in how many seconds you want to reset system (1~255):");
                scanf("%d",&tt);
        }
        outportb(0x2e,0x87);       //Unlock register
        outportb(0x2e,0x87);       //Unlock register
        outportb(0x2e,0x07);       //set Logic Device number pointer
        outportb(0x2f,0x08);       //set Logic Device number
        outportb(0x2e,0x30);       //set  WDTO active
        outportb(0x2f,0x01);       //set reg value active (bit0 =1 active,0 inactive )
        outportb(0x2e,0xf2);       //set WDTO Control Mode
        outportb(0x2f,0x00);       //set register value Default :00h
                                   //bit7 Mouse interrupt reset enables watch-dog timer reload
                                   // 0: Watchdog Timer I is not affected by mouse interrupt.
                                   // 1: Watchdog Timer I is reset by mouse interrupt.
                                   // bit6 Keyboard interrupt reset enables watch-dog timer reload
                                   // 0: Watchdog Timer I is not affected by keyboard interrupt.
                                   // 1: Watchdog Timer I is reset by keyboard interrupt.
        outportb(0x2e,0xf0);       //set WDTO Control Mode
        outportb(0x2f,0x00);       //set register value Default :00h
                                   // (bit3=1: minute. =0: second)
        outportb(0x2e,0xf1);       //set WDT Counter
        outportb(0x2f,tt);         //set time out value of WDT

}

void show_ver()
{
        unsigned char tmp0;
        printf("Designed by attila of UNICORN computer corp.  \n2012/04/05 release
version:1.0a\n");
        printf("This program is design for test Watch Dog Timer for ENADT-7703 (NCT6106D).\n");
}
```

2-5. Digital I/O

Pin define:

J2: DIGITAL I/O Pin Header (2 x 7 with 2.0mm)

Pin No.	Signal	Pin No.	Signal
1	+5V	**2**	+5V
3	DIO-O0	**4**	DIO-I0
5	DIO-O1	**6**	DIO-I1
7	GND	**8**	GND
9	DIO-O2	**10**	DIO-I2
11	DIO-O3	**12**	DIO-I3
13	+3.3V	**14**	+3.3V

Digital I/O port address:

This function is support by onboard super I/O chip; it can be control easily by change the register of super I/O chip via I/O port “2Eh” and “2Fh”. Please see the sample code of below for implement. Voltage tolerance: +/- 5% with 0V to +5V.

Sample code for input (using Turbo C/C++ 3.0):

bit No	7	6	5	4	3	2	1	0
Map	DIO-I3	DIO-I2	DIO-I1	DIO-I0	NA	NA	NA	NA

Sample code for input (using Turbo C/C++ 3.0)

```
#define input_port 0x2f // Digital input data port
        Unsigned char read_data;
        outportb(0x2e,0x87);        //Unlock register
        outportb(0x2e,0x87);        //Unlock register
        outportb(0x2e,0x07);        //set Logic Device number pointer
        outportb(0x2f,0x07);        //set Logic Device number
        outportb(0x2e,0x30);        //set Device Active
        outportb(0x2f,0x02);        // set Bit 2 =GPIO2 ; 0=Inactive / 1= Active Default: DFh
        outportb(0x2e,0xE8);        // set GPIO Output / Input Port
        outportb(0x2f,0xF0);        // 0=Output/ 1=Input
                                    // Bit 0~3 DIO-O0~ DIO3 / Bit4~7 DIO-I0~DIO-I3.
        outportb(0x2e,0xE9);        //Read DIO-Input  register.
                                    //Bit7~Bit4 = DIO-I3~DIO-I0.(Read Only)

        read_data=inportb(input_port);    // Read digital input data
        printf("DIO-Input=%02X\n",read_data);    //Show digital input data on screen
```

Sample code for output (using Turbo C/C++ 3.0):

bit No	7	6	5	4	3	2	1	0
Map	NA	NA	NA	NA	DIO-O3	DIO-O2	DIO-O1	DIO-O0

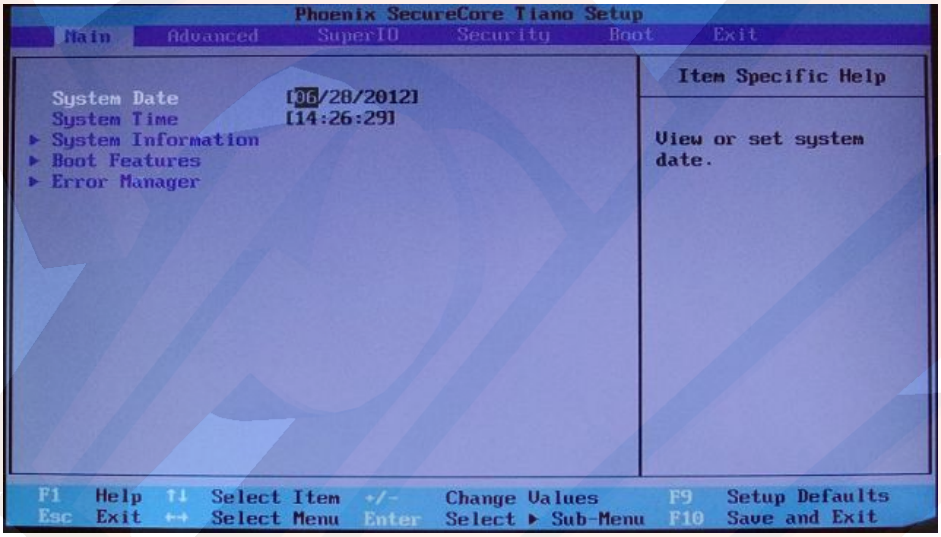
Sample code for output (using Turbo C/C++ 3.0)

```
outportb(0x2e,0x87);        //Unlock register
outportb(0x2e,0x87);        //Unlock register
outportb(0x2e,0x07);        //set Logic Device number pointer
outportb(0x2f,0x07);        //set Logic Device number
outportb(0x2e,0x30);        //set Device Active
outportb(0x2f,0x02);        // set Bit 2 =GPIO2 ; 0=Inactive / 1= Active Default: DFh
outportb(0x2e,0xE8);        // set GPIO Output / Input Port
outportb(0x2f,0xF0);        // 0=Output/ 1=Input
                            // Bit 0~3 DIO-O0~ DIO3 / Bit4~7 DIO-I0~DIO-I3.
outportb(0x2e,0xE9);        //Read DIO-Input  register.
outportb(0x2f,0xnm);        // n=DIO-I0~DIO-I3 / m=DIO-O0~DIO-O3.
                            Bit7~Bit3 = DIO-I3~DIO-I0.(Read Only)
```

Chapter 3. Phoenix UEFI BIOS SETUP

Phoenix SecureCore Tiano Setup

BIOS menu screen



Setup Menu

The menu bar on top of the screen has the following main items:

> Main	For changing the basic system configuration.
> Advanced	For changing the advanced system setting.
> Super IO	For changing the system IO configuration.
> Security	For changing the security system setting.
> Boot	For changing the system boot configuration.
> Exit	For select the exit options and loading default setting.

Use the BIOS CMOS setup program to modify the system parameters to reflect the environment installed in your system and to customize the system as desired. Press the <F2> key to enter into the BIOS CMOS setup program when you turn on the power. Settings can be accessed via arrow keys. Press <Enter> to choose an option to configure the system properly.

In the main menu, press F10 or “Exit Saving Changes” to save your changes and reboot the system. Choose “Exit Discarding Changes” to ignore the changes and exit the setup procedure. Pressing <ESC> at anywhere during the setup will return to the main menu.

All of the above CMOS BIOS items require board knowledge on PC/AT system architecture. Incorrect setup could cause system malfunctions.

Navigating Setup Menus and Fields
Navigation (moving your cursor around, selecting items, and changing them) is easy in Setup.

Following setting belongs to standard function setting:

Main Menu

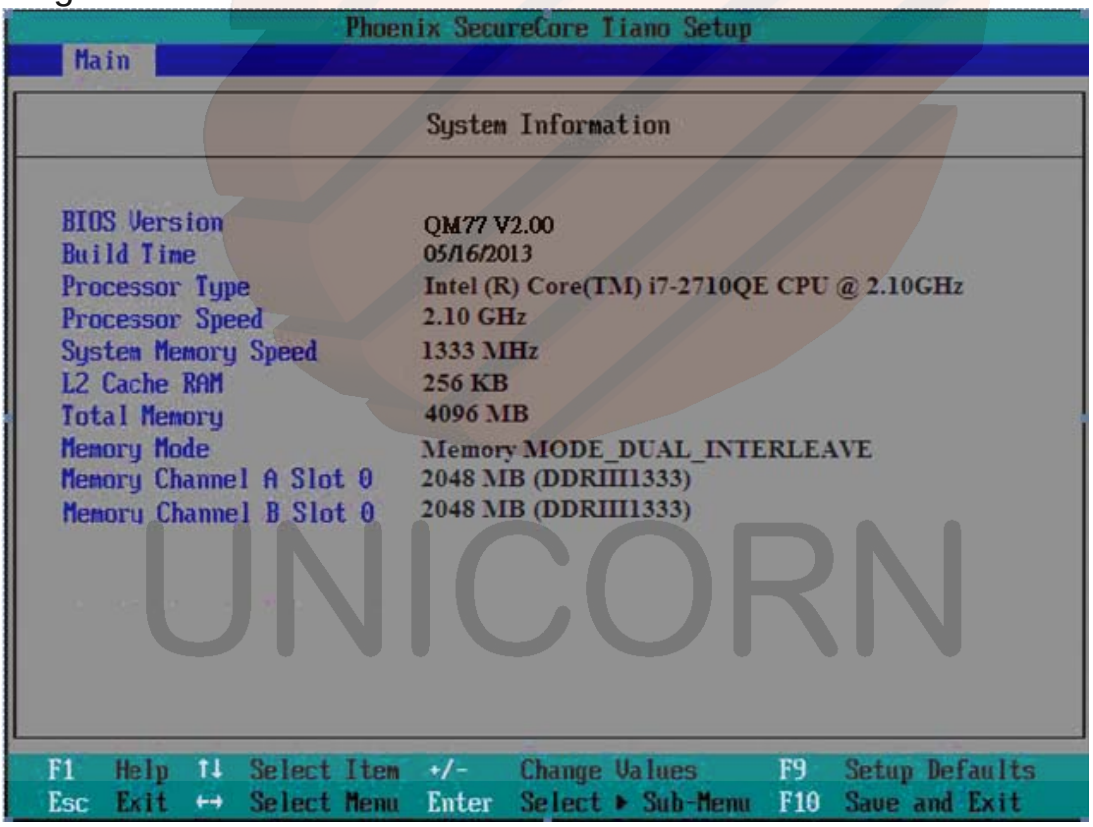
The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Hard Disk Drive settings.

- **System Date (mm:dd:yy)**
- **System Time (hh:mm:ss)**

Allows you to set the system date and time
(Use the TAB and BACKTAB (SHIFT + TAB) keys.)

- **System Information**

This submenu provides information about the system BIOS, CPU, and memory, as shown in Figure

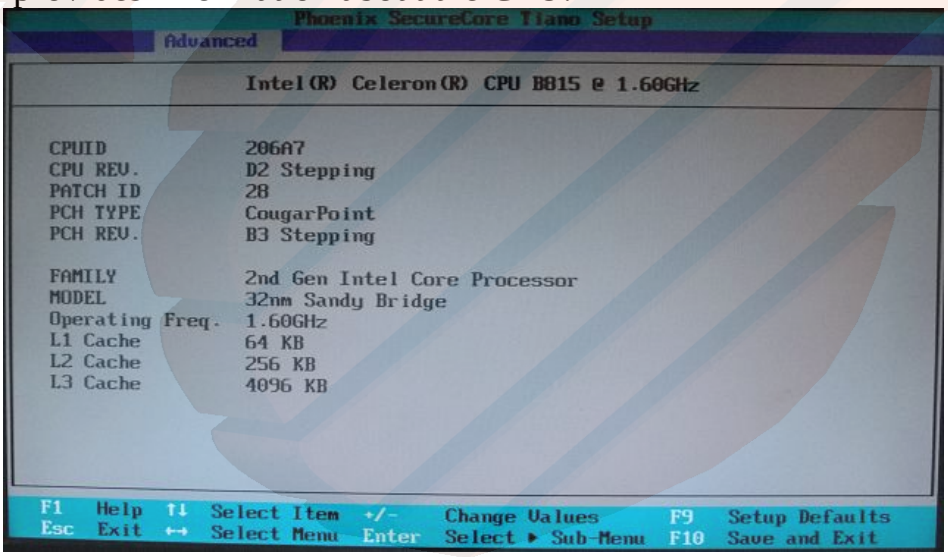

Phoenix SecureCore Tiano Setup
Main
System Information
BIOS Version QM77 V2.00
Build Time 05/16/2013
Processor Type Intel (R) Core(TM) i7-2710QE CPU @ 2.10GHz
Processor Speed 2.10 GHz
System Memory Speed 1333 MHz
L2 Cache RAM 256 KB
Total Memory 4096 MB
Memory Mode Memory MODE_DUAL_INTERLEAVE
Memory Channel A Slot 0 2048 MB (DDRIII1333)
Memory Channel B Slot 0 2048 MB (DDRIII1333)
UNICORN
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

The following table describes the settings associated with the **Boot Features.**

Quick Boot	Enables OEM Logo
High Resolution Graphics	Enables high resolution graphics.
Diagnostic Splash Screen	Enables graphical POST, including animation, sound, icons, advertisements, and other multimedia objects that may be configured by the OEM.
Diagnostic Summary Screen	Enables the diagnostic summary screen.
UEFI Boot	Enables the Unified Extensible Firmware Interface.
Legacy Boot	Enable this option to bypass some drivers and speed up POST.

Advanced Menu

The following table describes the settings associated with the **Silicon Information.** This submenu provides information about the CPU.


Phoenix SecureCore Tiano Setup
Advanced
Intel(R) Celeron(R) CPU B815 @ 1.60GHz
CPUID 206A7
CPU REV. D2 Stepping
PATCH ID 28
PCH TYPE CougarPoint
PCH REV. B3 Stepping
FAMILY 2nd Gen Intel Core Processor
MODEL 32nm Sandy Bridge
Operating Freq. 1.60GHz
L1 Cache 64 KB
L2 Cache 256 KB
L3 Cache 4096 KB
F1 Help ↑↓ Select Item +/- Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

The following table describes the settings associated with the **HDD Configuration menu.**

Interface Combination	Select the SATA controllers operation mode.(IDE, AHCI, RAID0,1,5,10)

The following table describes the settings associated with the **System Agent (SA) Configuration menu – Graphics Configuration.**

Primary Display Selection.	Select the primary display device.

The following table describes the settings associated with the **System Agent (SA) Configuration menu – Graphics Configuration- IGD Configuration.**

IGD – Boot Type	Select the Video Device activated during POST. This has no effect if external graphics are present.
IGD – LCD Panel Type	Select LCD (LFP/LVDS) resolution. 640x480, 800x600, 1024x768, 1280x1024, 1440x1050, 1920x1080, 1600x1200, 1366x768, 1680x1050, 1920x1200, 1440x900, 800x480, 1024x600, 2048x1536, OEM resolution.
IGD – Active LFP	No LVDS: Disable OnBoard LVDS Int-LVDS:Enable OnBoard LVDS
Panel Color Depth	Select the LCD (LFP/LVDS) Panel Color Depth.

The following table describes the settings associated with the **Network Configuration.**

PCH Internal LAN	En/Disable PCH (Intel 82579LM) Internal LAN.
LAN OPROM Selection	This is used to select LAN OPROM for quick boot minimal configuration.

Super IO Menu

The following table describes the settings associated with the **SIO Configuration.**

COM2 Type	Select Serial 2 type: RS232, RS485, RS422.
UART2 Termination	For RS485, RS422 Termination.
Power Failure – Power Control	Select Always On/Off, Former State.

Security Menu

The following table describes the settings associated with the **Security Configuration.**

Trusted Platform Module (TPM)	No support for ENDAT-7703.

Boot Menu

This submenu provides information about the Boot devices boot priority.

Chapter 4. VGA, SDVO and drivers

4-1. Graphic controller Feature

• The Processor Graphics contains a refresh of the sixth generation graphics core enabling substantial gains in performance and lower power consumption.

• Next Generation Intel Clear Video Technology HD support is a collection of video playback and enhancement features that improve the end user's viewing experience.
— Encode/transcode HD content
— Playback of high definition content including Blue-ray Disc*
— Superior image quality with sharper, more colorful images

• DirectX* Video Acceleration (DXVA) support for accelerating video processing
— Full AVC/VC1/MPEG2 HW Decode

• Advanced Scheduler 2.0, 1.0, XPDM support

• Windows* 7, XP, Windows Vista*, OSX, Linux OS Support

• DX10.1, DX10, DX9 support

• OGL 3.0 support

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4-2. Driver Utility Installation Guide

1. When finishing the installation of Windows XP, Vista, please install the relative Intel® chipsets, display and audio driver manually for compliance compatibility of hardware environment.

2. Please contact sales department of UNICORN for Embedded OS user driver (Linux, Windows CE and Windows XP embedded). All of embedded OS driver is not be included in any versions of driver DVD-ROM from UNICORN.

Please download or check from Intel® web site: www.intel.com for more information or last versions of driver as needs!

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Appendix A: FLASH MEMORY UTILITY

Using this package to update the system BIOS from a disk file to the on board Flash memory. Be aware any improper update of the system BIOS will cause the malfunction of the system.

Method of update BIOS:

1. Please contact one of the Sales Representative on behalf of Unicorn to acquire "BIOS update package", and process following procedures for the BIOS UPDATE.
2. Prepare a bootable storage that can boot under MS-DOS, (such as HDD, USB sticker…etc)
3. Unzip "BIOS Update package" into the bootable storage.
4. Run the Flash file.
5. Once the BIOS is Flash successfully, Reboot the system.
6. Press <F2> to enter BIOS Setup, Load BIOS setup default <F9>, save BIOS default and exit <F10>.

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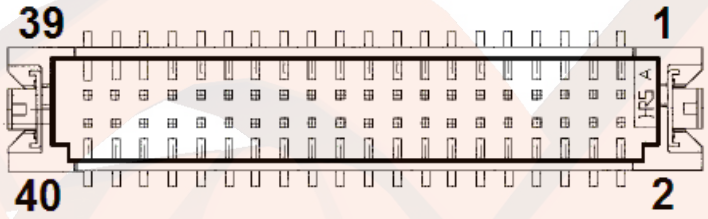
Appendix B: LVDS PIN ASSIGNMENT

LVDS1: Single /Dual Channel LVDS (18/24/36/48 bit, 1.25mm)

MB: DF-13A-40DP-1.25V / Map: DF13-40DS-1.25C



Pin No.	Signal	Pin No.	Signal
1	VBL	**2**	VBL
3	GND	**4**	GND
5	DISP.ON/OFF	**6**	GND
7	LCD POWER	**8**	LCD POWER
9	GND	**10**	GND
11	Odd 0+	**12**	Odd 0-
13	Odd 1+	**14**	Odd 1-
15	Odd 2+	**16**	Odd 2-
17	Odd 3+	**18**	Odd 3-
19	Odd CLK+	**20**	Odd CLK -
21	GND	**22**	KEY
23	Even 0+	**24**	Even 0-.
25	Even 1+	**26**	Even 1-
27	Even 2+	**28**	Even 2-
29	Even 3+	**30**	Even 3-
31	Even CLK+	**32**	Even CLK-
33	LCD POWER	**34**	LCD POWER
35	GND	**36**	GND
37	GND	**38**	GND
39	VBL	**40**	VBL

Please make sure the Pin 1 location before plug-in LCD connector.
Please leave pin 23rd ~ pin 32nd unconnected if the single channel LVDS function is needed.

Please double check "jumper setting & LCD cable's orientation" before power-on, any incorrect installation may caused damaged of the LCD.

Appendix C: LIMITED WARRANTY

Standard Two years limited warranty on all our ENDAT series all-in-one motherboards and embedded board. Products that become defective during the warranty period shall be repaired, or subject to manufacturer's option, replaced. The limited warranty applies to normal proper usage of the hardware and does not cover products that have been modified or subjected to unusual electrical or physical stress. Unicorn Computer Corp is not liable to repair or replace defective goods caused by improper using or use of unauthorized parts. The following situations will be charged:

1. The products during the warranty but defective caused by improper using or artificial external pressure and result in the components damages. According to the damage situation, the manufacturer has the rights to decide to repair or not. The manufacturer will charge the parts/repair cost and the returning shipping charge.
2. The products out of warranty will charge the parts/repair cost and the returning shipping charge as per the repair status.
3. The manufacturer has the rights to decide to repair or not based on the stock of parts for the products which are phased out of the production.
4. Please e-mail or fax the RMA Service Request Form when have the defective products.

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RMA SERVICE REQUEST FORM

When requesting RMA service, please fill out this “RMA Service Request Form”. This form needs to be shipped with your returns. Service cannot begin until we have this information.

RMA NO.:

Company:	Person to Contact:
Phone No:	Purchase Date :
Fax No. :	Applied Date :
Return Shipping Address:	

Model No.	Serial No.	Problem Description

Please specify the following when returning the RMA boards:
(1) Hardware Configuration (2) OS or Software (3) Testing Program

_____
Authorized Signature